

(19) 世界知的所有権機関
国際事務局(43) 国際公開日
2004 年 3 月 4 日 (04.03.2004)

PCT

(10) 国際公開番号
WO 2004/018740 A1(51) 国際特許分類⁷: C25D 15/00, H01M 2/02

(21) 国際出願番号: PCT/JP2003/010405

(22) 国際出願日: 2003 年 8 月 18 日 (18.08.2003)

(25) 国際出願の言語: 日本語

(26) 国際公開の言語: 日本語

(30) 優先権データ:
特願2002-239869 2002 年 8 月 20 日 (20.08.2002) JP(71) 出願人 (米国を除く全ての指定国について): 東洋
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式会社 下松工場内 Yamaguchi (JP).(81) 指定国 (国内): AE, AG, AL, AM, AT, AU, AZ, BA, BB,
BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK,
DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU,
ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT,
LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ,
OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ,
TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA,
ZM, ZW.(84) 指定国 (広域): ARIPO 特許 (GH, GM, KE, LS, MW, MZ,
SD, SL, SZ, TZ, UG, ZM, ZW), ユーラシア特許 (AM,
AZ, BY, KG, KZ, MD, RU, TJ, TM), ヨーロッパ特許
(AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB,
GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR),
OAPI 特許 (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
ML, MR, NE, SN, TD, TG).添付公開書類:
— 国際調査報告書2文字コード及び他の略語については、定期発行される
各PCTガゼットの巻頭に掲載されている「コードと略語
のガイダンスノート」を参照。(54) Title: SURFACE TREATED STEEL PLATE FOR BATTERY CASES, ITS MANUFACTURING METHOD, BATTERY
CASE FORMED USING THE STEEL PLATE, BATTERY USING THE BATTERY CASE(54) 発明の名称: 電池ケース用表面処理鋼板、その製造方法、その鋼板を用いて成形された電池ケース及びその電池ケースを
使用した電池(57) Abstract: A surface treated steel plate for battery cases having an improved electrical contact with the battery positive electrode
active material, its manufacturing method, a battery case, and a battery are disclosed. The surface treated steel plate has a graphite-
dispersed nickel plating layer in which graphite is dispersed or a graphite-dispersed nickel alloy plating layer at least on the inner
surface of a battery case. The alloy plating layer is preferably made of a nickel-cobalt alloy, a nickel-cobalt-iron alloy, a nickel-
manganese alloy, a nickel-phosphorus alloy, or a nickel-bismuth alloy. The battery case is produced by forming the surface treated
steel plate by drawing, DI, or DTR. The battery uses the battery case.(57) 要約: 本発明は、電池正極活物質との電気接触性を改良した電池ケース用表面処理鋼板、その製造方法、電池ケース
及び電池を提供することを目的とする。表面処理鋼板は、少なくとも電池ケース内側になる面に、黒鉛を分散した黒
鉛分散ニッケルめっき層又は黒鉛分散ニッケル合金めっき層が形成されている。合金めっき層としては、ニッケル-コバルト合金、
ニッケル-コバルト-鉄合金、ニッケル-マンガン合金、ニッケル-リン合金、又はニッケル-ビスマス合金などが形成されていることが好まし
い。また、電池ケースは、本発明の表面処理鋼板を絞り加工、DI加工、DTR加工等を用いて成形される。本発明の電
池は、この電池ケースを使用したものである。

INTERNATIONAL SEARCH REPORT

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International application No.

PCT/JP03/10405

A. CLASSIFICATION OF SUBJECT MATTER
Int.Cl⁷ C25D15/00, H01M2/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl⁷ C25D15/00, 15/02, 7/00, H01M2/02

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	WO 00/05437 A1 (Toyo Kohan Co., Ltd.), 03 February, 2000 (03.02.00), Claims; page 5, lines 24 to 26 & EP 1103438 A1 & KR 2001-86350 A & CN 1311829 A	1, 2, 4-11 3
X Y	JP 2000-268783 A (Toyo Kohan Co., Ltd.), 29 September, 2000 (29.09.00), Claims; Par. No. [0022] (Family: none)	1, 2, 4-11 3
X Y	JP 2002-180296 A (Toyo Kohan Co., Ltd.), 26 June, 2002 (26.06.02), Claims; Par. No. [0010] (Family: none)	1, 2, 4-11 3

☒ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier document but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search
09 September, 2003 (09.09.03)

Date of mailing of the international search report
24 September, 2003 (24.09.03)

Name and mailing address of the ISA/
Japanese Patent Office

Authorized officer

Facsimile No.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP03/10405

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 94/22174 A1 (Nisshin Steel Co., Ltd.), 29 September, 1994 (29.09.94), Claims & JP 6-342653 A & EP 643428 A1 & US 5527641 A	3